



INSTITUT TEKNOLOGI SEPULUH NOPEMBER (ITS)
FAKULTAS TEKNOLOGI ELEKTRO DAN INFORMATIKA CERDAS
DEPARTEMEN TEKNIK ELEKTRO
Program Studi Sarjana (S1) Teknik Telekomunikasi

1	Nama Mata Kuliah / Course Name :	Rangkaian Gelombang Mikro / <i>Microwave Circuits</i>
2	Kode Mata Kuliah / Course Code :	EL234709
3	Kredit / Credits :	3 SKS
4	Semester / Semester :	Pilihan / Elective Course

Deskripsi Mata Kuliah / Course Description

Mata kuliah ini merupakan mata kuliah pilihan yang ditawarkan kepada mahasiswa Program Studi Sarjana Teknik Telekomunikasi, Departemen Teknik Elektro ITS. Secara umum, capaian pembelajaran pada topik Sistem Gelombang Mikro meliputi definisi dan karakteristik sistem gelombang mikro, komponen pembentuknya, dan teknik pengukuran komponen gelombang mikro.

This course is an elective course offered to undergraduate students in Telecommunication Engineering Program, Department of Electrical Engineering at ITS. Generally, the learning outcomes of the Microwave System topic include understanding the definition and characteristics of microwave systems, the components that make up the system, and techniques for measuring microwave components.

Capaian Pembelajaran Lulusan (CPL) Yang Dibebankan Mata Kuliah / Program Learning Outcomes Charged to The Course

1. (CPL-02) Mampu mengkaji dan memanfaatkan ilmu pengetahuan dan teknologi dalam rangka mengaplikasikannya pada bidang Teknik Telekomunikasi, serta mampu mengambil keputusan secara tepat dari hasil kerja sendiri maupun kerja kelompok dalam bentuk laporan tugas akhir atau bentuk kegiatan pembelajaran lain yang luarannya setara dengan tugas akhir melalui pemikiran logis, kritis, sistematis dan inovatif.
(PLO-02) Be able to study and utilize science and technology in order to apply it to the field (study program expertise), and able to make appropriate decisions from the results of their own work or group work in the form of a final project report or other forms of learning activities whose output is equivalent to a final project through logical, critical, systematic, and innovative thinking.*
2. (CPL-04) Mampu menerapkan ilmu pengetahuan alam dan matematika serta teknologi dan rekayasa informasi untuk memperoleh pemahaman komprehensif pada bidang Teknik Telekomunikasi.

(PLO-04) Able to apply knowledge of sciences, mathematics, and information technology to acquire comprehensive understanding of engineering principles in Telecommunication Engineering

3. (CPL-05) Mampu merancang komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi.

(PLO-05) Able to design components, systems, and/or processes to meet desired needs within realistic constraints in such aspects as law, economic, environment, social, politics, health and safety, sustainability as well as to recognize and/or utilize the potential of local and national resources with global perspective

Capaian Pembelajaran Mata Kuliah / Course Learning Outcomes

1. Mampu menjelaskan konsep dasar sistem gelombang mikro / *Able to explain the basic concept of microwave systems*
2. Mampu menjelaskan karakteristik komponen gelombang mikro / *Able to explain the characteristics of microwave components*
3. Mampu melakukan perancangan dasar sistem gelombang mikro / *Able to perform basic design of microwave systems*
4. Mampu menjelaskan fungsi dan mekanisme kerja instrumentasi pengukuran RF / *Able to explain the function and working mechanism of RF measurement instrumentation.*

Pokok Bahasan / Contents

1. Definsi dan karakteristik sistem gelombang mikro / *Definition and characteristics of microwave systems*
2. Komponen Aktif Gelombang Mikro / *Active Microwave Components*
3. Komponen Pasif Gelombang Mikro / *Passive Microwave Components*
4. Saluran Transmisi Gelombang Mikro / *Microwave Transmission Lines*
5. Arsitektur Sistem Gelombang Mikro / *Microwave System Architecture*
6. Perancangan Sistem Gelombang Mikro / *Microwave System Design*
7. Teknik Pengukuran Gelombang Mikro / *Microwave Wave Measurement Techniques*

Prasyarat / Pre-requisite

Elektronika Telekomunikasi / *Telecommunication Electronics*

Pustaka / Reference

1. David M. Pozar, "Microwave and RF wireless Systems", John Wiley & Sons, 2001.
2. R. Garg & Bahl, Microstrip Lines & Slotlines, Artech, 1979.